PARTIAL

SELECTED CURRENT

BIBLIOGRAPHY ON THE

EFFECTS OF ELF MAGNETIC

FIELDS ON LIVING BEINGS

Adey, Walter,"Application of Phase Detection and Averaging Technology in Computer Analysis; EEG of Cats," in Experimental Neurology, Vol. 7: pp 186 - 209 (1963).

Adey, Walter, " Organization of Brain Tissue: Is the Brain a Noisy Processor?" in International Journal of Neuroscience, Vol. 3: pp. 271 - 284 (1972).

Adey, Walter, "Discrimination among States of Consciousness by EEG Measurement." in Electroenceph . and Clinical Neurophysiography, Vol. 22: pp. 22 - 29 (1967).

Kaezmarek, L .. and Adey, W., " Weak Electric Gradients Change Ionic and Transmitter Fluxes in Cortex.", in Brain Research, Vol. 66: pp. 537 - 540 (1974).

Aschoff, . and Gerecke, "Desynchronization of Human Circadian Rhythms," in Japanese Journal of Physiology, Vol. 17: pp. 450 - 457. (1967).

Barlow, H. and Walsh, ., "Visual Sensations Arcused by Magnetic Fields." in American Journal of Physiology, Vol. 148: pp. 372 - 375. (1917).

Barlow, J. S., "Rhythmic Activity Induced by Photic Stimulation in Relation to Intrinsic Alpha Activity of the Brain in Man," in E.E.G. Clinical Neurophysiology, Vol. 12, (1960).

- Becker, ., "The Biological Effects of Magnetic Fields," in Medical Electronics and Biological Engineering, Vol. 1: pp. 293 - 303

Faber, . and Korn, ., "A Neuronal Inhibition Mediated Electrically", in Science, Vol. 179: pp. 577 - 578 (1973).

Frey, A . H., "Brain Stem Evoked Responses Associated with Low Intensity Pulses UHF Energy", in Journal of Applied Physiology, Vol. 23: pp. 984 - 988 (1967).

Friedman, ., Becher, ., and Bachman, ., "Geomagnetic Parameters and Psychiatric Hospital Admissions", in Nature, Vol. 200: pp. 626 (1963), London.

Gengerelli, . and Holter, ., "Experiments on Stimulation of Nerves by Alternating Electrical Fields", in the Proceedures of the Society of Experimental Biology, Vol. 46; p. 523 (1941), N.Y.

- Grodsky, I. T., "Possible Physical Substrates for the Interaction of Electromagnetic Fields with Biological Membranes", in the Annals of the New York Academy of Sciences, Vol. 247 : pp. 117 - 123 (1975), N . Y.

Keeton, ., "Magnets Interfere with Pigeon Homing", in the Proceedures of the National Academy of Science, Vol. 68: pp. 102 - 106 (1971).

- Konig, H., "Biological Efficts of Extremely Los Frequency Electrical Phenomena in the Atmosphere", In Interdiscipline Cycle Research, Vol. 2: number 3, pp.317 - 323 (1971), Amsterdam.

- Ludwig, H. W., "A Hypothesis Concerning the Absorbtion Mechanism of Atmospherics in the Nervous System", in the International Journal of Biometeorology, Vol. 12, 2: pp. 93 - 98 (1968).

of a Magnetic Field", in the American Journal of Physiology, Vol. 29: pp. 124 - 136 (1911).

Murr, L., "The Biophysics of Plant Growth in a Reversed Electrostatic Field..... in the International Journal of Biometeorology, Vol. 10, 2: pp. 135 - 146 (1966 b).

Ravitz, J. L., "History, Measurements, and Applicability, of Periodic Changes in the Electromagnetic Field in Health and Disease", in the Annals of the N.Y. Academy of Sciences, Vol. 98, 4: pp. 1144 - 1201 (1962).

Subbota, A. G., "The Effect of a Pulsed Super High Frequency Field on the Higher Nervous Activity of Dogs", in the Bulletin of Experimental Medicine, Vol. 46: pp. 1206 - 1211 (1958).

Terzulolo, . and Bullock, . "Measurement of Imposed Voltage Gradients Adequate to Modulate Neuronal Firing", in the Proceedures of the National Academy of Sciences Vol. 42: pp. 687 - 694 (1956), Washington.

Vander Tweel, et. al. "Human Visual Response to Sinusoidal Modulated Light", in the Electroenceph. Clinical Neurophysiology, Vol. 18: pp. 587 - 598 (1965)

Wever, R., "The Effects of Electric Fields on Circadian Rhythms in Men", in the Life Sciences Space Research, Vol. 8: pp. 177 - 187 (1970).

Schumann, W. O., Uber die strahlungslosen Eigenschwingungen einer leitenden Kugel, die von e ner Luftschicht und einer ionospharenhulle ungeben ist. Z. Naturforsch., 7a: 149 - 154.

— Hamer, J.R., Biological Entrainment of the Human Brain, Northrop Space Laboratories, (priviledged communi ation), August 3, 1963, June 7, 1965, January 21, 1965

— Von Holst. E., "Electrically Controlled Behavior", in the Scientific American, Vol. 206, pp. 50 - 59 (March, 1962).

Brown, F., "Response to Pervasive Geophysical Factors and the Biological Clock Problem", Cold Spring Harbor Symposia on Quanitative Biology, 1960.

— Bawin, S.M., Kaczmarch, L.K., and Adey, W.R., "Effects of Modulated VHF Fields on the Central Nervous System", in the Annals of the N.Y. Academy of Sciences, 1975 (?

Galvas, R.J., Walter, D.O., Hammer, J., and Adey, W.R., "Effect of Low-level Frequency Electric Fields on EEG and Behavior in Macaca Nemestrina", in Brain Research, Vol. 18: ;;. 491 - 501 (1970).

Bawin, S.M., Gavalas-Medici, and Adey, W.R., "Reinforcement of Transient Brain Rhyth by Amplitude - Modulated VHF Fields ", in The Effects of Low-Frequency Magnetic and Electrical Fields on Biological Communication Processes, Ed. C.C. Thomas, Springfield, Illinois.

— Frey, A.H., : "Human Auditory System Response to Modulated Electromagnetic Energy", Journal of Applied Physiology., Vol. 17: pp. 689 - 692. (1962).

— Bawin, S.M., and Adey, W.R., " Sensitivity of Calcium Binding in Cerebral Tissue to Weak Environmental Oscillating Low Frequency Electric Fields", University of California, Los Angeles, California. Environmental Neurobiology Laboratory, Brain Research Institute and Department of Anatomy.

Wever, R., "Human Circadian Rhythms under the Influence of Weak Electric Fields and the Different Aspects of These Studies", in the International Journal of Biometeorology, Vol. 17, 3 : pp. 227 - 232, (1973).

Tromp, S.W., "Seasonal and Yearly Fluctuations in Meteorologically Induced Electromagnetic Wave Patterns in the Atmosphere (period 1956 - 1968) and Their Possible Biological Significance", in the Interdiscipline Cycle Research, Vol. I, 2: pp. 193 - 199 (1970).

Adey, W.R., "Evidence for Cooperative Mechanisms in the Susceptibility of Cerebral Tissue to Environmental and Intrinsic Electric Fields", in the Functional Linkage in Biomolecular Systems, Eds. Schmitt, F.O., Schneider, D.M., Crothers, D.M., Raven Press, N.Y., 1975.

Bawin, S.M., Gavalas-Medici, R.J., and Adey, W.R., "Effects of Modulated Very High Frequency Fields on Specific Brain Rhythms in Cats", in the Brain Research, Vol. 58: pp. 365 -384, (1973), Elsevier Scientific Publishing Co., Amsterdam.

Maxey, E.S., " Critical Aspects of Human Versus Terestrial Electromagnetic Symbiosis", Presented at United States National Committee of the International Union of Radio Science, USNC/URSI - IEEE Meeting, Boulder, Colo., Oct. 20-23, 1975.

Polk, C. and Fitchen, F., "Schumann Resonances of the Earth - Ionosphere Cavity - Extremely Low Frequency Reception at Kingston", In the Journal of Research, of the National Bureau of Standards - D. Radio Propagation, Vol 66D, 3: May, June, 1962.

Galejs, J., "Schumann Resonances", in the Radio Science Journal of Research NBS/USNC - URSI, Vol. 69D, 8: August, 1965

Raemer, H.R., "On the Spectrum of Terrestrial Radio Noise at Extremely Low Frequencies ", in the Journal of Research of the National Bureau of Standards - D. Radio Propagation, Vol 65D, 6: November, December, 1961.

Chapman, F.W., and Jones, D.L., "Observations of Earth-Ionosphere Cavity Resonances and Their Interpretation in Terms of a Two-Layer Ionosphere Model", in the Radio Science Journal of Research NBS/ USNC - URSI, Vol. 68D,11: November, 1964.

ADMIRALTY HANDBOOK OF WIRELESS TELEGRAPHY, Vol. II, Wireless Telegraphy Theory, Pub. by His Majesty's Stationery Office, London, 1938.

Healey, R., Reed, J., The Behaviour of Slow Electrons in Gases, Sydney, Australia, Amalgamated Wireless, Ltd., 1941.

Adey, W.R., "Introduction Effects of Electromagnetic Radiation on the Nervous System", in the Annals of the N.Y. Academy of Sciences, Vol. 247: pp. 15 - 20, February 28, 1975.

Ludwig, H.W., Compatibility of Weak Magnetic ELF Fields, Tuebingen, West Germany (D -7400)

Soyka, F., The Ion Effect, E.F. Dutton, N.Y., 1976.

Friedman, H., Becker, R., and Bachman, C., "Effect of Magnetic Fields on Reaction Time Performance", in Nature, Vol. 213: pp. 949 - 950, March 4, 1967, London.

Alpert, Y.L., & Fligel, D.S. Propagation of ELF and VLF waves near the earth. New York: Consultants Bureau, 1970, Pp 88-94

Barnwell, F.H. A day-to-day relationship between the oxidative metabolism and world-wide geomagnetic activity. Biol. Bulletin, 1960, 119, 303

Becker, R.O. The neural semiconduction control system and its interaction with applied electrical current and mognetic fields. Proc. XI the Int. Cong. Radiol., 1965, 11, 1753-1759

Becker, R.O. The effect of magnetic fields upon the central nervous system. In M.F. Barthony, (Ed) Biological effects of magnetic fields. New York: Plenum, 1969 Pp. 207-214.

DE Lorge, J. Operant behavior of rhesus monkeys in the presence of extremely low frequency-low intensity magnetic and electric fields: experiment I. Pensacola: Naval Aerospace Medical Research Lab., 1972 (NAMRL-1155)

Friedman, H., & Carey, R.J. The effects of magnetic fields upon rabbit brains. Physiol. & Behav., 1969, 4, 539-541.

Galejs, J. Terrestrial extremely-low-frequency propagation. In D.F. Bleil (Ed.) Natural electroma phenomena below 30 Kc/s. New York: Plenum, 1964 Pp. 205-260.

Grissett, J.D., & de Lorge, J. Central nervous system effects as measured by reaction time in squirrel monkeys exposed for short periods to extremely low frequency magnetic fields. Pensacola: Naval Aerospace Medical Research Lab., 1971

Holzer, R.E., & Deal, O.E. Low audio-frequency electromagnetic signals of natural origin. Nature, 1956, 177, 536-537.

Jacobs, J.A. Geomagnetic micropulsations. New York: Springer-Verlag, 1970

Kholodov, Y.A. Effects on the central nervous system. in M. Barnothy (Ed.) Biological effects of magnetic fields. Ne York, Plenum, 1964. Pp. 196-200.

Large, D.B., & Wait, J.R. Theory of electromagnetic coupling phenomena in the earth-ionosphere cavity. J. Geophys. Res., 1968, 73, 4335-4362.

McPherron, R.L., Russel, C.T., & Coleman, P.J. Fluctuating magnetic fields in the magnetosphere: II ULF waves. Space sc. Rev., 1972, 13, 411-454.

Ormenui, I. Possible effect of ELF range atmospherics of 3-cps range on traffic accidents in a metropolitan area in Hungary. Int. J. Biometeor., 1972, 16 (suppl.), 93-94.

Persinger, M.A, Ossenkopp, K.P., & Glavin, G.B. Behavioral changes in adult rats exposed to ELF magnetic fields. Int. J. Biometeor., 1972, 16, 155-162.

Photiades, D.P., Riggs, R.J., Ayivor h,S.C., & Reynolds, J.O. Electrosleep in man by a combination of magneto-inductive and transtemporal electric currents. In N.L. Wulfsohn & A. Sances (Eds.) The nervous system and electric currents. New York, Plenum, 1970. Pp. 153-158.

Russo, F., & Caldwell, W.E. Biomagnetic phenomena: some implications for the behavioral and neurophysiological sciences. Genet. Psychol. Monogr., 1971, 84, 177-243.

Saito, T. Geomagnetic pulsations. Space Sci. Rev., 1969, 10, 319-411.

Schumann, W.O. Elektrische Eigenschwingungen des Hohlraumes Erde-Luft-Ionosphcere. Z. angew. u. Phys., 1957, 9, 373-378.

occurence of acute myocardial infarction. Amer. Heart J., 1955, 49, 9-20.

Tepley, L.R., & Amundsen, K.D. Notes on sub ELF emissions observed during magnetic storms. J. Geophys. Res., 1964, 69, 3749-3754.

ney, J., & Polk, C. Research on extremely low frequency propagation with particular emphasis on Schumann resonance and related phenomena. Bedford: Air Force Cambridge Research Laboratories, 1970.

Tromp, S.W. Medical biometeorology. New York: Elsevier, 1963

Valentinuzzi, M. Magnetobiology. Downey: N.A. Aviation, Inc., 1961

Dubrov, A.P. The earth's magnetic field and life,, Yu.A. Kholodov, (Ed.) Gidrometeoizdat, Leningrad, 1974.

Sturrock, P.A., Generation of radio noise in the vicinity of the earth, Jr. Res. Natl. Bureau of Standards, D. Radio Propagation, V. 66D, # 2, March-April 1962

Cohen, D., Magnetoencephalography: evidence of magnetic fields produced by alpha-rhythm currents. Science, 1968 161, 784-786.

Konig, H.L. Behavioral changes in human subjects associated with ELF electric fields, in ELF and VLF Electromagnetic Field Effects, Persinger (Ed.), New York, Plenum 1974

schoff, J., Internal dissociation and desynchronization of Circadian systems. Proc. XXI st Int. Cong. Aviation and Space Medicine, p. 225, 1973

er, R., The effects of electric fields on circadian rhythms in man. Life Sciences and Space Research, 8: 177-187, 1970a.

stes, W.K., & Skinner, B.F., Some quantitative properties of anxiety. Jr. of Exp. Psych. 1941, 29, 390-400.

holodov, Y., The effect of electromagnetic and magnetic fields on the central nervous system. Translation: NASATT F 465. Washington, D.C.: NASA, 1967.

arr, M.J., Rivers, W.K., & Burns, C.P., The effect of low energy, ELF electromagnetic radiation on operant behavior in the pigeon and the rat. Final Report, Feb. 28, 1973, Georgia Institute of Technology, Contract # N00014-67-0159-0009, Office of Naval Research.

auquelin, M., & Cauquelin, F., A possible hereditary effect on time of birth in relation to the diurnal movement of the moon and the nearest planets. Jts relationship with geomagnetic activity. Int. J. Biometeor., 1967, 11, 341

eber, A.L., & Sherin, C.R., Homicides and the lunar cycle: toward a theory of lunar influence on human emotional disturbance. Amer. J. Psychiat., 1972, 129, 101-106.

senkopp, K.P., & Ossenkopp, M.D., Self-inflicted injuries and the lunar cycle: a preliminary report. J. Interdiscipl. Cycle Research, 1973, 4, 337-348.

singer, M.A., Possible cardiac driving by an external rotating magnetic field. Int. J. Biometeor., 1973, 17, 263-266.

varez, A.M., Apparent points of contact between the daily course of the magnetic components of the earth together with certain solar elements, and the diastolic pressure of human beings and the total count of their leukocytes. Puerto Rico J. Public Health and Tropical Medicine, 1935, 10, 374-395.

geomagnetic activity. Biol. Bulletin., 1960, 119, 303

Cope, F.W., Biological sensitivity to weak magnetic fields due to biological superconductive Josephson Junctions? Physiol., Chem. and Physics, 1973, 5, 173-176

Friedman, H., Becker, R.O., & Bachman, C.H., Geomagnetic parameters and psychiatric hospital admissions. Nature, 1963, 200, 626-628.

Hansen, K.M., Some observations with a view to possible influence of magnetism upon the human organism. Acta. Med. Scand., 1938, 97, 339-364.

Kevanishvili, G.S., and Zhgenti, T.G., Primary mechanism of electromagnetic field effect on living organisms. Soobshch. Acad. Nauk. Gruz S.S.R., 1971, 62, 37-40

Zhokhov, V.P., & Indeikin, E.I., Relationship between acute attacks of glaucoma and changes in the magnetic field of the earth. Vestn. Opthalmol., 1970, 5, 29-30.

Carson, R.W., Anti-fatigue device works by creating electric field. Product Engineering, Feb. 13, 1967

Einaudi, F., & Wait, J.R.: Analysis of the excitation of the earth-ionosphere waveguide by a satelli borne antenna, parts I and II. Can . J. Phys., 49: 11, no. 4, 1971.

Galejs, J. : Terrestrial propagation of long electromagnetic waves, Elmsford, N.Y., Pergamon, 1972, Pp. 129, 138, and ch. 13.

Maxwell, E.L., and Stone, D.L.: Natural noise fields from 1 C/S to 100 KC/S, Boston, Boulder, Washington, Report NR 371-590 for Office of Naval Research, DECO Electronics, Dec. 15, 1960.

Ogawa, T., Tanaka, Y., Miura, T., and Yasuhara, M: Observations of natural ELF and VLF electromagnetic noises using ball antennas. J. Geom Geoelectricity 18: 443-454, 1966.

Sanguine Division: Sanguine System Final Environmental Impact Statement, Wash. D.C., Naval Electronics Systems Command (PME 117-21) April 1972, Pp 77-78.

Shatten, V.H., and Wilcox, J.M., Response of the geomagnetic activity index Kp to the interplanetary magnetic field. J. Geophys Res., 72: 5185-5191 no 21, November 1967.

Schumann, W.O., On the characteristic oscillations of a conducting sphere which is surrounded by an air layer and an ionospheric shell (in German) Z Naturforschung, Vol 71, 1952.

Beischer, D.E., Miller, E.F., and Knepton, J.C. Jr.: Exposure of man to low intensity magnetic fields a coil system. NAMI - 1018 NASA R-39. Pensacola, Fla., Naval Aerospace Medical Institute, October 3, 1967

Wade, N.: Fishcher-Spassky charges: What did the Russians have in mind? Science, 177:778, 1972

Kouwenhoven, W.B., et al : Medical evaluation of men working in alternating current electric fields, IEEE Trans. Power Apparatus Systems. PAS-86 # 4: 506, 1967

Beischer, D.E., and Grissett, J.D. Extremely low frequency radiation and man, Taylor, P., Commander USN (Ed.) Proceedings of the Department of Defense Electromagnetic Research Workshop (limited distribution) 1971.